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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Edward J. Ciaccio et al.  
Serial No.: 09/918,216  
Filed : July 30, 2001  
For : SYSTEM AND METHOD FOR DETERMINING REENTRANT  
VENTRICULAR TACHYCARDIA ISTHMUS LOCATION AND SHAPE  
FOR CATHETER ABLATION

1185 Avenue of the Americas  
New York, New York 10036  
September 17, 2002

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT

In order to ensure compliance with the applicant's duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), Applicants hereby submit this Information Disclosure Statement.

Applicants direct the Examiner's attention to the following references which are listed on Form PTO-1449 attached hereto as **Exhibit A**. Copies of references 1-29 are attached hereto as **Exhibits 1-29**, respectively.

1. Spach, M.S., et al., "The Functional Role of Structural Complexities in the Propagation of Depolarization in the Atrium of the Dog", Circulation Research, (1982) 50:175-191;
2. Gardner, P.I., et al., "Electrophysiologic and Anatomic Basis for Fractionated Electrograms Recorded From Healed Myocardial Infarcts", Circulation, (1985) 72:596-611;
3. Pogwizd, S.M. and Corr P.B., "Reentrant and Nonreentrant Mechanisms Contribute to Arrhythmogenesis During Early Myocardial Ischemia: Results Using Three-Dimensional

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Mapping'', Circulation Research, (1987) 61:352-371;

4. Dillon, S.M., et al., "Influences of Anisotropic Tissue Structure on Reentrant Circuits in the Epicardial Border Zone of Subacute Canine Infarcts'', Circulation Research, (1988) 63:182-206;
5. Chinushi, M., et al., "Proarrhythmic Effects of Antiarrhythmic Drugs Assessed by Electrophysiologic Study in Recurrent Sustained Ventricular Tachycardia'', Japanese Circulation Journal, (1991) 55:133-141;
6. Smith, J.H., et al., "Altered Patterns of Gap Junctional Distribution in Ischemic Heart Disease: an Immunohistochemical Study of Human Myocardium Using Laser Scanning Confocal Microscopy'', American Journal of Pathology, (1991) 139:801-821;
7. Rohr, S., and Salzberg, B.M., "Characterization of impulse propagation at the microscopic level across geometrically defined expansions of excitable tissue: multiple site optical recording transmembrane voltage (MSORTV) in patterned growth heart cell cultures'', J Gen Physiol, (1994) 104:287-309;
8. Miller, J.M., et al., "Effect of Subendocardial Resection on Sinus Rhythm Endocardial Electrogram Abnormalities'', Circulation, (1995) 91:2385-2391;
9. Stevenson, W.G., et al., "Relation of pace-mapping QRS configuration and conduction delay to ventricular tachycardia reentry circuits in human infarct scars'', JM Am Coll Cardiol., (1995) 26:481-488;

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10. Bogun, F., et al., "Comparison of effective and ineffective target sites that demonstrate concealed entrainment in patients with coronary artery disease undergoing radiofrequency ablation of ventricular tachycardia", Circulation, (1997) 95:183-190;
11. Hadjis, T.A., et al., "Effect of recording site on postpacing interval measurement during catheter mapping and entrainment of postinfarction ventricular tachycardia", J. Cardiovasc Electrophysiol., (1997) 8:398-404;
12. Harada, T., et al., "Catheter ablation of ventricular tachycardia after myocardial infarction: relationship of endocardial sinus rhythm late potentials to the reentry circuit", JACC, (1997) 30:1015-1023;
13. Josephson, M.E., et al., "Pathophysiologic substrate for sustained ventricular tachycardia in coronary artery disease", Jap Circ J, (1997) 61:459-466;
14. Peters, N.S., et al., "Disturbed connexin43 gap junction distribution correlates with the location of reentrant circuits in the epicardial border zone of healing canine infarcts that cause ventricular tachycardia", Circulation, (1997) 95:988-996;
15. Peters, N.S., et al., "Characteristics of the temporal and spatial excitable gap in anisotropic reentrant circuits causing sustained ventricular tachycardia", Circ. Res. (1998) 82:279-293;
16. Pogwizd, S.M., et al., "Mechanisms underlying spontaneous and induced ventricular arrhythmias in patients with idiopathic dilated cardiomyopathy", Circulation, (1998)

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98:2404-2414;

17. Schilling, R.J., et al., "Simultaneous endocardial mapping in the human left ventricle using a non-contact catheter" , Circulation, (1998) 98:887-898;
18. Stevenson, W.G., et al., "Radiofrequency catheter ablation of ventricular tachycardia after myocardial infarction", Circulation, (1998) 98:308-314;
19. Bogun, F., et al., "Clinical value of the postpacing interval for mapping of ventricular tachycardia in patients with prior myocardial infarction", Journal Cardiovas Electrophysiol., (1999) 10:43-51;
20. Schilling, R.J., et al., "Feasibility of a non-contact catheter for endocardial mapping of human ventricular tachycardia", Circulation, (1999) 99:2543-2552;
21. Ciaccio, E.J., et al., "Dynamic Changes in Electrogram Morphology at Functional Lines of Block in Reentrant circuits During Ventricular Tachycardia in the Infarcted Canine Heart: A New Method to Localize Reentrant Circuits from electrogram Features Using Adaptive Template Matching", J. Cardiovasc. Electrophysiol., (1999) Vol. 10, pp. 194-213;
22. Ciaccio, E.J., "Localization of the slow conduction zone during reentrant ventricular tachycardia", Circulation, (2000) 102:464-469;
23. Ciaccio, E.J., et al., "Relationship of Specific Electrogram Characteristics During Sinus Rhythm and Ventricular Pacing Determined by Adaptive Template matching

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to the Location of Functional Reentrant Circuits that Cause Ventricular Tachycardia in the Infarcted Canine Heart'', J Cardiovasc Electrophysiol, (2000) Vol. 11:446-457;

24. Ellison, K.E., et al., ''Catheter ablation for hemodynamically unstable monomorphic ventricular tachycardia'', JCE, (2000) 11:41-44;
25. Ciaccio, E.J., et al., ''Relationship between Sinus Rhythm Activation and the Reentrant Ventricular Tachycardia Isthmus'', Circulation, (2001) 104:613-619;
26. Ciaccio, E.J., ''Dynamic relationship of cycle length to reentrant circuit geometry and to the slow conduction zone during ventricular tachycardia'', Circulation, (2001) 103:1017-1024;
27. Ciaccio, E.J., et al., ''Static Relationship of Cycle Length to Reentrant Circuit Geometry'', Circulation, (2001) 104:1946-1951;
28. Soejima, K, et al., ''Catheter ablation in patients with multiple and unstable ventricular tachycardias after myocardial infarction: short ablation lines guided by reentry circuit isthmuses and sinus rhythm mapping'', Circulation, (2001) 104:664-669; and
29. Ciaccio, E.J., ''Premature excitation and onset of reentrant ventricular tachycardia'', Am J Physiol Heart Circ Physiol, (2002) Vol. 283:H1-H11;

Copies of the following references (30-44) will be submitted to the U.S. Patent and Trademark Office after Applicants obtain copies thereof.

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30. Scherlag, B.J., et al., "Sustained Ventricular Tachycardia: Common Functional Properties of Different Anatomical Substrates", In Zipes DP, Jalife J. eds. Cardiac electrophysiology and arrhythmias. Orlando Fla: Grune and Stratton, (1985) 379-387;
31. Kogan, B.Y., et al., "Excitation Wave Propagation With Narrow Pathways: Geometric Configurations Facilitating Unidirectional Block and Reentry", Physica D, (1992) 59:275-296;
32. Stevenson, W.G., et al., "Identification of reentry circuit sites during catheter mapping and radiofrequency ablation of ventricular tachycardia late after myocardial infarction", Circulation, (1993) 88:1647-1670;
33. Wit, A.L. and Janse, M.J., "Basic mechanisms of arrhythmias", In: Wit AL and Janse MJ, eds. The ventricular arrhythmias of ischemia and infarction. New York, NY: Futura, (1993) 1-160;
34. Blanchard, S.M., et al., "Why is catheter ablation less successful than surgery for treating ventricular tachycardia that results from coronary artery disease?" PACE, (1994) 17:2315-2335;
35. Cabo, C., et al., "Wave-front curvature as a cause of slow conduction and block in isolated cardiac muscle", Circulation Research, (1994) 75:1014-1028;
36. Aizawa, Y., et al., "Catheter ablation of ventricular tachycardia with radiofrequency currents, with special reference to the termination and minor morphologic change of

- reinduced ventricular tachycardia'', AM J Cardiol., (1995) 76:574-579;
37. Downar, E., et al., ''Endocardial mapping of ventricular tachycardia in the intact human ventricle. III. evidence of multiuse reentry with spontaneous and induced block in portions of the reentrant path complex'', JACC, (1995) 25:1591-1600;
38. El-Sherif, N., ''The figure-8 model of reentrant excitation in the canine postinfarction heart'', In Zipes DP, Jalife J, eds: Cardiac Electrophysiology: From Cell to Bedside. WB Saunders, Philadelphia, (1995) 363-378;
39. Russ, J.C., ''The Image Processing Handbook'', Boca Raton, Fla: CRC Press, (1995) 456-462;
40. Sato, M., et al., ''The efficacy of radiofrequency catheter ablation for the treatment of ventricular tachycardia associated with cardiomyopathy'', Jpn Cir J., (1997) 61:55-63;
41. Ellison, K.E., et al., ''Entrainment mapping and radiofrequency catheter ablation of ventricular tachycardia in right ventricular dysplasia'', J Am Coll Cardiol., (1998) 32: 724-728;
42. Krishnan, S.C. and Josephson, M.E., ''Mapping techniques and catheter ablation of ventricular tachycardia due to coronary artery disease'', Arch Mal Coeur Vaiss., (1998) 91: 21-26;
43. Rohr, S., et al., ''Optical recording of impulse propagation in designer cultures, Cardiac tissue architectures inducing ultra-slow conduction'', Trends in Cardiovascular Medicine,

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(1999) 9:173-179; and

44. Schilling, R.J., et al., "Characteristic of sinus rhythm electrograms at sites of ablation of ventricular tachycardia relative to all other sites: a non-contact mapping study of the entire left ventricle", JCE, (1998) 9:921-933;

A first Office Action has not been received in connection with the subject application. Accordingly, pursuant to 37 C.F.R. §1.97(b)(3), Applicants believe that the present Information Disclosure Statement is timely filed and no fee or certification is due or required.

However, in the event that a first Office Action has been mailed but has not yet been received by Applicants or connected with the application file in the undersigned attorney's office, Applicants hereby request, pursuant to 37 C.F.R. §1.97(c)(2), consideration of this Information Disclosure Statement, and authorization is hereby given to charge to Deposit Account No. 03-3125 ONE HUNDRED AND EIGHTY DOLLARS (\$180.00), which is the amount of the fee under 37 C.F.R. §1.17(p) for filing an Information Disclosure Statement pursuant to 37 C.F.R. §1.97(c)(2).

If a telephone conference would be of assistance in advancing the prosecution of the subject application, Applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

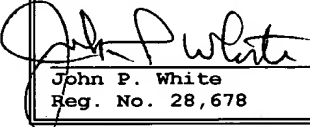


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No fee is believed to be due in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,

I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

  
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